AFHSC Surveillance Bulletin
Health Surveillance, Analysis, and Insight for Action

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Ebola Outbreak: Dr. Joseph Fair Speaks About His Work on the Ground

The Armed Forces Health Surveillance Center is one of several U.S. government agencies offering assistance to the Ebola outbreak in three West African countries. As part of its efforts, AFHSC's Global Emerging Infections Surveillance (GEIS) division has provided support to the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) to quickly establish diagnostic laboratory capability for the Ebola disease through shipments of reagents and testing supplies to both Sierra Leone and Liberia. In addition, GEIS has supported the U.S. Naval Medical Research Unit 3 (NAMRU-3), which in collaboration with the Armed Forces Liberia and the Liberia Institute for Biomedical Research (LIBR), set up laboratory capabilities to permit Ebola testing for suspected cases. Dr. Joseph Fair, an advisor to Fondation Mérieux USA, a nonprofit organization dedicated to fighting infectious disease by strategically engaging with American partners, describes his six-week stint working to control the epidemic in Liberia.

We are in the middle of the largest outbreak of Ebola virus in known history and much has yet to be done to bring this epidemic under control. AFHSC, like many U.S. government agencies, continues to a play a critical role in managing the epidemic, particularly in Liberia where I traveled to provide assistance. In April, the U.S. Ambassador to Liberia and the World Health Organization (WHO) representative in Liberia asked me to deploy there to set up laboratory diagnostics for Ebola at the Liberian National Reference Laboratory (NRL) at the LIBR in Charlesville, Margibi County, ensuring that diagnostic capacity was available if Monrovia would experience Ebola virus cases. As it turns out, Margibi County, in which Monrovia is located, has experienced 624 confirmed, probable and suspected cases of Ebola virus as of September 28, according to WHO surveillance data.

I was eager to take on the challenge, having worked in Sierra Leone for the past 10 years. However, I was unfamiliar with Liberia, so I reached out to my friends and colleagues at AFHSC to find my footing in Monrovia. Enter Lieutenant Joseph Diclaro, a medical entomologist at NAMRU-3 and a humble example of a deft naval officer.

Front page of Liberian newspaper after Ebola outbreak, April 4, 2014.

Lt. Diclaro introduced me to all the right people and provided me with everything I needed—a pre-flight briefing about the conditions on the ground, contacts for local staff, a bed to sleep in, and transportation to and from the laboratory. AFHSC, through its ongoing partnership with NAMRU-3, was able to provide additional space for a laboratory that we converted for use in diagnosing Ebola. Without this laboratory space, we would have had an infinitely more difficult time in getting diagnostics up and running. I had previously been used to walking into "worst-case" scenarios but this was definitely not one of those.

Lt. Diclaro and I worked alongside Lawrence Fakoli of the LIBR and Aaron T. Momolu of the National Public Health Reference Laboratory; Dr. Lisa Hensley from the National Institutes of Health's Integrated Research Facility; and Dr. Randy Schoepp, chief of diagnostics at USAMRIID, and his colleague Wes Carter. Within three days, our team stood up

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Ebola RT-PCR and serology diagnostic capability at the NRL and began training local nationals on how to run and interpret the diagnostics. The RT-PCR diagnostics that we used were provided by the Department of Defense Critical Reagents Program. These in vitro diagnostics were recently granted Emergency Use Authorization by the Food and Drug Administration, and importantly, were provided free of charge to the host nation. USAMRIID's Diagnostic Systems Division also provided all of the serology reagents and has provided personnel, both a critical component in confidently diagnosing the disease. The Defense Threat Reduction Agency's Cooperative Biological Engagement Program funded my travel and many of the supplies that have been shipped into Liberia since April, making this one of the most successful cost-sharing exercises ever demonstrated by medical aid programs. Led by Lt. Dicarlo, our interagency response team consisting of me, NIH, USAMRIID, the NRL, LIBR, the Liberian Armed Forces, and NAMRU-3, is a model for future defense cooperation and medical diplomacy.

Dr. Joseph Fair takes inventory of new laboratory supplies.

Dr. Joseph Fair and Mr. Lawrence Fakoli, at work in the laboratory.

Department of Defense Data Now Available to BioSense Users

Department of Defense data from medical facilities on patient encounters and illnesses with their appropriate ICD-9 medical codes are now available through a collaborative data exchange system that allows state and local health departments to monitor and respond to diseases and hazardous conditions in their communities.

This system, known as BioSense, allows users to view the Department of Defense data alongside local emergency department data when conducting public health surveillance activities during emergencies and other significant events. BioSense is maintained by the Centers for Disease Control and Prevention's Division of Health Informatics and Surveillance within its Center for Surveillance, Epidemiology, and Laboratory Services.

"The inclusion of Defense Department data in BioSense is a huge victory for the public health community," said Dr. Julie Pavlin, deputy director of AFHSC. "It encourages use of these data to corroborate findings in the civilian community and to validate elevated syndromic counts by viewing the ICD-9 codes selected."

BioSense is the only public health surveillance system that enables state and local health departments to quickly share health information with each other across city, county and state jurisdictions. State and local health departments sign a data use agreement with the CDC to use the information. To protect these Department of Defense data, BioSense users must seek advance permission before using it in any presentations or publications.

The system also will encourage more collaboration between the civilian and military public health communities. "BioSense users can work more closely with their military public health colleagues in states and regions on investigations of abnormalities," Dr. Pavlin said.

WHO Secondee Assists with Ebola Outbreak Response

As the Ebola outbreak spread in West Africa, Naval Commander Dr. David Brett-Major sprang into action as part of the Global Capacities Alert and Response department of the WHO. Brett-Major served on a WHO team of experts that successfully treated and discharged the first Nigerian survivor of Ebola.

Nigeria has reported 20 cases of Ebola, including seven deaths. A total of 271 people are under surveillance as of Wednesday, Sept. 17, according to figures from the country's health ministry. Individuals under surveillance are usually tracked for 21 days following last exposure to a person suffering from Ebola.

Upon arrival in Nigeria, Commander Brett-Major played a critical role on the WHO team that was working at an Ebola virus disease care center. He initiated care for patients and helped to develop and distribute the protocol for initial screening of patients. He provided technical advice to the facility's case management working group on direct patient care and implementation of the initial mass gatherings technical advice. He advocated for broader active case finding and increased preparedness by the Nigerian government. As the number of medical staff increased to provide care, Commander Brett-Major conducted training in patient care protocols. ▲

The WHO Public Affairs Office contributed to this report.

AFHSC Assists Department of Defense on Global Health Security Agenda

Before top government and public health officials descended on Washington, D.C., two weeks ago for a summit on the new Global Health Security Agenda, AFHSC and other military officials already had laid the groundwork for the Department of Defense's longer-term strategy to prevent the global spread of infectious-disease epidemics.

On September 26, officials from 44 nations involved with the Global Health Security Agenda gathered in Washington to make commitments to prevent avoidable epidemics, detect threats early and respond rapidly and effectively when an outbreak occurs. The White House launched the initiative in February.

A key discussion about worldwide health security took place in July at a Global Health Summit in Jakarta, Indonesia. AFHSC Director Navy Captain Kevin Russell attended the meeting on behalf of Dr. Jonathan Woodson, assistant secretary of defense for health affairs, as a member of a U.S. delegation. Health, public health, and agriculture officials from more than 30 countries gathered to discuss how to protect people around the world from infectious disease—particularly zoonotic diseases that can be passed between animals and humans. The July event was hosted by the Indonesian government and supported by the U.S. Agency for International Development.

"I came away from these meetings in Jakarta with a clearer understanding about how AFHSC and Health Affairs can engage more robustly to assist the Department of Defense and the U.S. government in meeting its goals for the Global Health Security Agenda," Captain Russell said.

AFHSC is a perfect fit to help the Department of Defense determine how it can bolster global capacity to deal with infectious disease and bioterrorism threats over the course of five years.

AFHSC's GEIS division already supports a robust global emerging infections surveillance response system through a network of partners that includes six Department of Defense overseas laboratories and its four U.S.-based reference laboratories. These laboratories conduct endemic and emerging disease surveillance and response missions through regional partnerships with local ministries of agriculture, defense and health as well as public and private universities and various non-governmental organizations. In addition, AFHSC's Integrated Biosurveillance division provides situational awareness of health threats through timely production and dissemination of executive summaries and various reports, white papers and guidelines. The Integrated Biosurveillance staff conducts global biosurveillance event scanning for public health events of potential relevance to the Department of Defense, monitor its reportable medical events and coordinate outbreak investigations within the department and with interagency partners.

AFHSC will examine its existing mechanisms to do more to improve

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Employee Spotlight: Lieutenant Commander Amy Peterson

All service members detailed to the AFHSC are eligible for deployment by their respective military branch to another assignment that isn't directly related to their current work. U.S. Public Health Service LCDR Amy Peterson, who leads the Epidemiology and Response team in AFHSC's Integrated Biosurveillance division, recently completed a one-week assignment to the Phoenix Area Indian Health Service (HIS) as part of the U.S. Public Health Service Veterinary Corps' assistance with Indian Health Service rabies vaccination clinics at reservations in Elko and Reno, Nev., and San Carlos, Ariz.

After a two-hour drive from Phoenix, Peterson got a chance to put her veterinary skills to work when she arrived at the San Carlos Apache Reservation and opened the free rabies clinic with a team that included representatives from the San Carlos Office of Environmental Health and Engineering and the Tribal Department of Health and Human Services.

The San Carlos Apache Reservation, which is about the size of the state of Delaware, is the 10th largest Native American reservation in the United States. About 10,000 people live on the reservation, and nearly 55 percent are families whose income falls below the poverty line. There are also nearly 5,000 dogs, including pets, and some who roam freely around the reservation, which increases the risk of transmission of rabies and tick-borne diseases.

"There isn't a great ability to get pets off the reservation to receive veterinary services," LCDR Peterson said. "There is only one clinic in a nearby town, and money and transportation can be a barrier to access of care. The free clinics are an opportunity to deliver invaluable information about preventative pet care and educate residents about rabies and other diseases."

Rabies is a viral disease that attacks the central nervous system and is almost always fatal once symptoms appear. Individuals who have been exposed to a rabid animal must promptly receive rabies treatment to halt the disease. The virus can be transmitted to animals or humans from exposure to infected saliva through bites and scratches or saliva entering open wounds or mucous membranes.

In Arizona, rabies most commonly occurs in bats, skunks, and foxes, but any mammal can carry or contract the disease. Rabid animals may show unusual behavior such as central nervous system disorders and an inability to coordinate voluntary muscular movements. Rabid carnivores such as skunks, foxes, bobcats, coyotes, dogs, and cats may become aggressive and may try to bite people, pets, and livestock.

Before opening the free rabies clinic at San Carlos Apache Reservation, local tribal officials advertised the times and locations of the clinic on the reservation's radio station and Facebook. LCDR Peterson's team traveled to four to seven sites per day, providing residents' pets with rabies shots, handing out fliers on neutering and spaying of animals and providing tick collars and tags. "I definitely think the messaging worked at getting out the word about the clinics," LCDR Peterson said. "We would arrive at a site and there would be people waiting with their pets. Some even brought their cats in pillowcases if they didn't have carriers."

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LCDR Amy Peterson spent a week vaccinating pets at the San Carlos Apache Reservation in Arizona.

Employee Spotlight *(Continued from page 4)*

During the four days, LCDR Peterson and her team gave rabies vaccinations to 282 animals (259 dogs and 23 cats). In addition, the team gave distemper and parvovirus vaccinations to nearly 280 dogs. Animals with ticks were sprayed and those with severe tick infestations received tick collars.

LCDR Peterson noted that local offices see between five and 10 dog bites to residents per month. She added that, even though Rocky Mountain spotted fever (a tick-borne disease caused by the bacterium *Rickettsia* and transmitted by the brown dog tick) has commonly been reported in the southeastern United States, it has recently been identified in eastern Arizona, an area where the disease had not been previously seen. Tribal authorities reported 260 cases of the disease with 19 deaths in six different reservations in the state from 2003 through 2012. There were only six cases in Arizona during the previous decade. Effective tick prevention is an important step to preventing cases of this zoonotic infection.

"The San Carlos staff were some of the most hard-working, professional, efficient and compassionate people that I've ever worked with," LCDR Peterson said. "I'd really love to come back for future community health events. Work like this has such a tremendous impact on the community and is a great reminder for U.S. Public Health Service veterinarians of why we entered the public health field."

Global Health Security Agenda to Develop Worldwide Strategy for Disease Epidemics

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countries' capability to detect and curb infectious disease outbreaks. AFHSC recognizes that adequate global public health among allies is critical to U.S. national security interests.

"Such events threaten not only the health of our citizens, but also geopolitical stability," Defense Secretary Chuck Hagel told a news conference in Washington, D.C. "To prevent, detect and respond to infectious disease outbreaks, we must work across all the sectors of our governments and across all of our nations in a concerted and global effort."

Personnel News

New Employees

- Kemi Sogunle, a contractor with Cherokee Nation Technology Solutions (CNTS), has joined Data Management and Technology Support (DMTS) as a functional requirements analyst.
- Belachew Kumsa, a contractor with CNTS, has joined DMTS as deputy program manager.
- Fahed Hijazi, a contractor with CNTS, has joined DMTS as a Java applications designer.
- Branndon Jackson, a contractor with CNTS, has joined the Global Emerging Infections Surveillance (GEIS) division as a business manager.
- Sean Friendly, a contractor with CNTS, has joined the GEIS division as a program manager for strategy, plans and policies.
- Dr. Koya Allen, an Oak Ridge Institute for Science and Education (ORISE) fellow, has joined the Epidemiology and Response team in the Integrated Biosurveillance (IB) division.
- Nellie Darling, an ORISE fellow, has joined the Alerts and Response Operations team in the IB division.

Awards

- Jennifer Rubenstein, a contractor with CNTS, was awarded a certificate of appreciation for her work as a program manager with the AFHSC headquarters staff.

New Births

- Dr. Martina Siwek, chief scientist for the GEIS division, gave birth to a girl on April 16.
- Denise Olive Daniele, a writer-editor for the *Medical Surveillance Monthly Report*, gave birth to a boy on August 25.

AFHSC Co-Sponsors Combatant Command Events on Malaria

As part of its mission, the GEIS division coordinates and supports training activities by the U.S. military Combatant Commands and its allies to bring military and public health officials together to share resources, strategies and expertise to address emerging and endemic diseases within their countries. AFHSC recently held two meetings in conjunction with U.S. Africa Command (AFRICOM) and U.S. Pacific Command (PACOM).

AFHSC Director of GEIS Division James Cummings (behind banner: front row, right), and U.S. Ambassador to Burundi Dawn Liberi (behind banner: front row, left) participated in the first joint meeting of the East and West Africa Malaria Task Force. The event was funded by AFHSC and coordinated by U.S. AFRICOM.

Navy Rear Admiral Colin G. Chinn (behind banner: front row, second from left) and Navy Captain Kevin Russell (behind banner: front row, right) hosted civilian and military health professionals from seven countries in the Greater Mekong Region of Southeast Asia to discuss prevention and surveillance of malaria.

Military representatives from 13 of the 15 countries who are members of the East and West Africa Malaria Task Force met jointly for the first time in August to share best practices in the prevention and treatment of malaria during a three-day conference in Burundi hosted by the Burundi National Defense Force. The conference followed separate meetings by each of the task forces in 2012 and 2013.

The latest meeting, which was co-sponsored by AFRICOM and AFHSC, took place August 25–27, and brought together representatives from Benin, Burkina Faso, Burundi, Djibouti, Ghana, Kenya, Niger, Nigeria, Rwanda, Senegal, Tanzania, Togo and Uganda. South Sudan and Liberia representatives were unable to attend.

"GEIS is committed to working with our partners here in Africa to combat malaria involving the ministries of health, ministries of defense, our NGOs [non-governmental agencies] and other performers," said U.S. Army Colonel James Cummings, director of GEIS, during an interview filmed by AFRICOM's public affairs office. "It will take a concerted effort to beat back this dread disease."

Malaria is recognized as a disease of military operational significance when U.S. service members deploy for long-term duty assignments, short-term contingency operations or personal travel. The U.S. military lost service members to the disease in 2009.

In 2013, 30 U.S. service members were diagnosed and/or reported with malaria, the lowest number of cases during a 10-year surveillance period beginning in 2003, according to the AFHSC's *Medical Surveillance Monthly Report.*

The Department of Defense sees a role in helping allies eliminate malaria where it's endemic as critical to U.S. national security interests. GEIS recognizes that adequate global public health capacity provides for country-level and regional stability. In 2012, a total of 627,000 people worldwide died from the disease in which 90 percent of the deaths occurred on the African continent.

"It's extremely important for the representatives of these countries to get together and talk about the impact of the malaria on troops, particularly troops contributing to nation building, in terms of morbidity and mortality, discuss ways in which they can share information, come together, have a strategy, have a road map, to address this important issue," said U.S. Ambassador to Burundi Dawn Liberi, who attended the conference on its opening day.

Representatives from each of the 13 countries presented and discussed their nation's experiences during peace-keeping missions and analysis of strengths and gaps in their military malaria programs during deployment. Many of the participants identified an array of challenges, ranging from shortages in insecticide-treated uniforms, mosquito repellents and protective nets to gaps in preventive education and guidelines for deploying service members.

The second day featured discussions by officials from the U.S. Army Medical Research Unit-Kenya (USAMRU-K) and NAMRU-3 on malaria control programs such as microscopy and entomology training. GEIS staff also presented on electronic health surveillance systems. USAMRU-K provided microscopy and entomology training to members of the East Africa Malaria Task Force in 2014, while NAMRU-3 and AFRICOM are planning similar efforts for West Africa Task Force members in 2015. The conference's final day was a closed session for the task forces to hold separate meetings on their future plans.

U.S. Pacific Command Regional Forum on Malaria Control and Elimination Among Military Partners

Civilian and military health professionals from seven countries in the Greater Mekong Region of Southeast Asia gathered to discuss prevention, control, surveillance and management of malaria, particularly drug-resistant strains of the disease during a three-day regional meeting in Phnom Penh, Cambodia.

The regional meeting, which took place August 11–13, was sponsored by U.S. Pacific Command (PACOM) and AFHSC as part of an international effort by linking civilian and military health systems to eliminate drug-resistance malaria

According to a WHO status report, emerging *Plasmodium falciparum* resistance to artemisinin derivates has been a global health concern for several years. The four countries currently most affected by the emergence of artemisinin resistance are Cambodia, Thailand, Vietnam and Myanmar.

"Drug-resistant malaria remains a significant health security threat to our partner countries as well as the greater global health community," said U.S. Navy Rear Admiral Colin G. Chinn, PACOM Surgeon. "The need right now is for more comprehensive, multi-sector approach response to the threat and for more coordination across stakeholders and international organizations to support these response efforts."

Meeting participants included the Royal Cambodian Armed Forces Department of Health, the U.S. Presidential Malaria Initiative, the U.S. Navy Medical Center-Asia (NMRC-Asia), Armed Forces Research Institute of Medical Science's, (NAMRU-2), the Global Fund to Fight AIDS, Tuberculosis and Malaria, the Bill and Melinda Gates Foundation and the WHO.

At the U.S. Embassy in Phnom Penh, participants attended a demonstration by representatives from the Armed Forces Pest Management Board and Navy Environmental Preventive Medicine Unit-6 on protective equipment measures that are used on the uniforms of U.S. military service members who are deployed. In one demonstration, experts showed the proper techniques for applying insecticide to uniforms, and discussed the availability of new repellants. In addition, the meeting participants discussed additional training on protective measures, field epidemiology, outbreak response and medical logistics to support a comprehensive response to malaria epidemics in high-risk areas.

NMRC-Asia, which is located in Singapore with a detachment in Phnom Penh, conducts malaria surveillance and research with the Royal Cambodian Armed Forces and the Ministry of Health through the National Center for Parasitology, Entomology and Malaria Control. AFHSC's GEIS division currently funds three malaria surveillance projects in Thailand, Cambodia and Vietnam. ▲

U.S. Public Health Service Commander Jeffrey McCollum and epidemiologist Alaina Halbach; GEIS's Febrile and Vector-borne Infections program surveillance activities; PACOM; and the U.S. Embassy in Burundi contributed to this report.

Attendees at the PACOM Regional Forum listen to presentations on malaria in the Greater Mekong Region of Southeast Asia.

Participants at the PACOM Regional Forum attend a demonstration on personal protective measures to prevent malaria while service members are deployed to high-risk areas.

More than 60 senior medical representatives from countries in East and West Africa participate in discussions on malaria prevention among service members during deployment.

Participants from the East and West Africa Malaria Task Force give presentations about their countries' military malaria programs during deployment.

Medical Surveillance Monthly Report Highlights

Check out the September issue of the *Medical Surveillance Monthly Report*. The issue highlights:

- Fractures Among Active Component, Recruit Trainees, and Deployed Service Members, U.S. Armed Forces, 2003–2012
- Diagnoses of Eating Disorders Among Active Component Service Members, U.S. Armed Forces, 2004–2013
- Erectile Dysfunction Among Male Active Component Service Members, U.S. Armed Forces, 2004–2013
- Deployment-Related Conditions of Special Surveillance Interest

Click here to view the entire issue.

Join AFHSC on Facebook and Twitter in an extended conversation on health surveillance efforts to promote, maintain and enhance the health of military and military-associated populations.

Director, Armed Forces Health Surveillance Center
CAPT Kevin L. Russell, MD, MTM&H, FIDSA (USN)

Editor/Writer
Judith Evans

Copy Editor
Elizabeth J. Lohr

Layout/Design
Darrell Olson

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- You can get information technology–related and BlackBerry assistance from the Enterprise Service Desk by calling 1-800-USAMITC (1-800-872-6482). Help is also available at https://esdsupport.amedd.army.mil or 800USAMITC@amedd.army.mil.
- As of November 1, 2014, all tips for taxis and/or baggage, laundry, ATM fees and other service charges will be included as incidentals under the per diem rate. These charges will no longer be approved as travel expenses. For example, when claiming reimbursement for a taxi ride to/from the airport, you must deduct any tips to the driver.
- You can access the new AFHSC template for preparing a poster presentation here: U:\HQ_Support\Templates
- You must include the taxes in the nightly lodging rate when completing a voucher in the Defense Travel System for OCONUS travel.